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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,707	02/18/2004	Michael Redecker	61610116US	8953

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VIENNA, VA 22182

EXAMINER

CANNING, ANTHONY J

ART UNIT	PAPER NUMBER
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2879

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/779,707

Applicant(s)

REDECKER ET AL.

Examiner

Anthony J. Canning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8-13,16-19 and 24 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-13 and 16-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Amendment

The amendment to the instant application was entered on 18 January 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8-13 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al. (WO 03/022008 A1).

As to claims 1 and 13, Thompson et al. discloses a display based on a photoluminescence quenching device (PQD), the display comprising: a substrate (page 13, line 9); an organic emitter layer (page 9, lines 4-6); a first electrode layer (page 13, lines 10-11), which is transparent and is arranged on a front side of the emitter layer (page 3, lines 1-4); a second electrode layer (page 3, lines 3-4), which is disposed on the backside of the emitter layer (page 3, lines 1-3); and at least one of a hole barrier layer or an electron barrier layer (page 16, line 15) where the hole barrier layer and/or the electron barrier layer are disposed between the emitter layer and one of the first electrode layer and second electrode layer (page 13, lines 19-22), wherein a highest occupied molecule orbital of the hole barrier layer is energetically lower than a highest occupied molecule orbital of the emitter layer (page 13, lines 22-23), and/or a lowest unoccupied molecule orbital of

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the electron barrier layer is energetically higher than a lowest unoccupied molecule orbital of the emitter layer (page 17, lines 17-30), wherein the lowest unoccupied molecule orbital of the emitter layer corresponds to the lowest unoccupied molecule orbital of the hole barrier layer (page 17, lines 8-10) and/or the highest occupied molecule orbital of the electron barrier layer corresponds to the highest occupied molecule orbital of the emitter layer (page 18, lines 10-12). The limitations stating whereby the first electrode layer forms a cathode and the second electrode forms an anode during re-emissive operation of the display, and the first electrode layer forms the anode and the second electrode forms a cathode during emissive operation of the display are directed to the method of operating the device and does not alter the structure of the device, consequently these limitations are not germane to the patentability of the device.

As to claims 8 and 16, Thompson et al. discloses the display of claims 1 and 13. Thompson et al. further disclose that an energy difference between the highest occupied molecule orbital of the electron barrier layer and the lowest unoccupied molecule orbital of the electron barrier layer and an energy difference between the highest occupied molecule orbital of the hole barrier layer and the lowest unoccupied molecule orbital of the hole barrier layer each amount to at least about 3.3 eV (page 19, lines 15-19).

As to claims 9 and 17, Thompson et al. discloses the display of claims 1 and 13. Thompson et al. further disclose that the electron barrier layer comprises at least one compound selected from a group consisting of triphenylamine derivatives, benzidine derivatives, and phenylenediamine derivatives (page 23, the metal doped organic structure at the bottom of the page).

As to claims 10 and 18, Thompson et al. discloses the display of claims 1 and 13. Thompson et al. further disclose that the hole barrier layer comprises at least one compound selected from a group consisting of oxadiazole derivatives, oxazole derivatives, triazole derivatives and quinoxaline derivatives and/or at least one compound selected from a group consisting of naphthalene carboxylic acid imide derivatives, naphthalene dicarboxylic acid dimide derivatives and wide-bandgap inorganic semiconductors (page 19, lines 15-28).

As to claims 11 and 19, Thompson et al. discloses the display of claims 10 and 18. Thompson et al. further disclose that the hole barrier layer is at least one of tin oxide, titanium oxide, zinc oxide, zirconium oxide, tantalum oxide, zinc sulphide and zinc selenide (page 3, lines 1-3).

As to claim 12, Thompson et al. discloses the display of claim 1. Thompson et al. further disclose that the hole barrier layer is disposed on a side of the emitter layer that faces towards the substrate and the electron barrier layer is disposed on a side of the emitter layer that faces away from the substrate (page 13, lines 10-11, with this configuration the hole blocking layer will be on the substrate side).

Response to Arguments

The examiner acknowledges the amendment to claim 11, consequently the claim objection has been withdrawn.

The examiner acknowledges the amendment to claim 19, consequently the 35 U.S.C. 112 2nd paragraph rejection has been withdrawn.

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Regarding the applicant's argument that the first electrode forms a cathode and the second electrode during the re-emissive operation of the display. The examiner notes that this does not define the structure of the device, and consequently is not germane to the patentability of the device.

Final Rejection

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Canning *AC*
20 March 2007

K. Guharay
KARABI GUHARAY
PRIMARY EXAMINER